

**WHAT IS CLAIMED IS:**

1. An imaging composition comprising a mixture of a fluid, a functional material and a surfactant and/or a dispersant;  
wherein the fluid is compressed and the functional material is dispersed and/or solubilized in the compressed fluid; and  
wherein the mixture is thermodynamically stable or thermodynamically metastable or both.
2. The imaging composition according to Claim 1, wherein the fluid is a compressed liquid.
3. The imaging composition according to Claim 1, wherein the fluid is a supercritical fluid.
4. The imaging composition according to Claim 1, wherein the fluid is a mixture of compressed liquid and supercritical fluid.
5. The imaging composition according to Claim 1, wherein the fluid is selected from the group consisting of carbon dioxide, nitrous oxide, ammonia, xenon, ethane, ethylene, propane, propylene, butane, isobutane, chlorotrifluoromethane, monofluoromethane, and sulphur hexafluoride.
6. The imaging composition according to Claim 1, wherein the fluid is carbon dioxide.
7. The imaging composition according to Claim 1, wherein the functional material is a liquid, a solid or combinations thereof.
8. The imaging composition according to Claim 1, wherein the functional material is selected from the group consisting of an organic molecule, a

polymer molecule, a metallo-organic molecule, an inorganic molecule, an organic nanoparticle, a polymer nanoparticle, a metallo-organic nanoparticle, an inorganic nanoparticle, an organic microparticles, a polymer micro-particle, a metallo-organic microparticle, an inorganic microparticle, and a composite material.

9. The imaging composition according to Claim 1, wherein the functional material is functionalized.

10. The imaging composition according to Claim 1, wherein the functional material is imaging dyes, imaging pigments, ceramic nanoparticles, magnetic nanoparticles or semiconductor nanoparticles.

11. The imaging composition according to Claim 1, wherein the functional material is particulate.

12. The imaging composition according to Claim 1, wherein the mean particle size of the functional material is between 1 nanometer and 1000 nanometers.

13. The imaging composition according to Claim 12, wherein the mean particle size of the functional material is between 1 nanometer and 100 nanometers.

14. The imaging composition of Claim 1, wherein on delivery to a substrate, the functional material is free of the compressed fluid.

15. The imaging composition of Claim 1, further comprising a co-solvent.

16. The imaging composition of Claim 15, wherein the surfactant is a fluorinated, perfluoropolyether, or siloxane surfactant.

17. The imaging composition of Claim 9, where in the functional groups for functionalization include fluorocarbons, siloxane or hydrocarbon groups.

18. The imaging composition of Claim 1, wherein the ratio of surfactant to functional material is from about 0.1:1 to about 500:1.

19. The imaging composition of Claim 17, wherein the ratio of surfactant to functional material is from about 1:1 to about 100:1.

20. The imaging composition of Claim 1, wherein the ratio of co-solvent to functional material is from about 0.01:1 to about 100:1.

21. The imaging composition of Claim 1, wherein the ratio of compressed fluid to functional material is from about  $1:1 \times 10^5$  to about 1:20.

22. An imaging composition comprising a mixture of a carbon dioxide and a colorant;

wherein the carbon dioxide is compressed and the colorant is dispersed and/or solubilized in the compressed carbon dioxide; and

wherein the mixture is thermodynamically stable or thermodynamically metastable or both.

23. The imaging composition of Claim 22, wherein the colorant is a dye or pigment.

24. An imaging composition comprising a mixture of a fluid, a color filter material and a surfactant and/or a dispersant;

wherein the fluid is compressed and the color filter material is dispersed and/or solubilized in the compressed fluid; and

wherein the mixture is thermodynamically stable or thermodynamically metastable or both.

25. The imaging composition according to Claim 24, wherein the color filter material is selected from the group consisting of phthalocyanines, isoindolinones, isoindolines, benzimidazolones, quinophthalones, quinacridones, dioxazines, thioindigos, epindolidiones, anthanthrones, isoviolanthrones, indanthrones, imidazobenzimidazolones, pyrazoloquinazolones, ketopyrrolopyrroles, and bisaminoanthrones.